THE EFFECT OF ENVIRONMENT ON SEED COMPOSITION OF TOFU AND NATTO SOYBEAN CULTIVARS

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ABSTRACT

Composition of soybean seeds is important to manufacturers of tofu and natto food products. The effect of environment on seed composition of tofu and natto soybean cultivars was measured in Missouri in 2004 and 2005. The environment was altered by varying the planting date and by planting at 7 to 10 locations in four soybean-producing regions in Missouri. The carboydrates sucrose, raffinose, and stachyose were measured by high performance liquid chromatography (HPLC), and protein and oil were measured by near infrared (NIR). Planting date affected tofu soybean composition. Significant planting date by cultivar interactions were found for sucrose, raffinose, and protein in both years. Sucrose increased with later planting in 2005. Location in Missouri also affected seed composition. Sucrose was highest at the Columbia location and stachyose was lowest at Oran for both years. Sucrose was negatively correlated to August temperatures in 2004 and 2005. These results can aid in producing management strategies for growers of tofu and natto soybean cultivars.